(5) Portable tank;
(6) Rail car; or
(7) Freight container.
(b) [Reserved]
(c) When fish scrap or fish meal is offered for transportation by vessel in bulk in freight containers, the fish meal must contain at least 100 ppm of anti-oxident (ethoxyquin) at the time of shipment.

[Amdt. 173–224, 55 FR 52643, Dec. 21, 1990, as amended at 68 FR 45034, July 31, 2003]

§ 173.219 Life-saving appliances.

(a) A life-saving appliance, self-inflating or non-self-inflating, containing small quantities of hazardous materials that are required as part of the life-saving appliance must conform to the requirements of this section. Packagings must conform to the general packaging requirements of subpart B of this part but need not conform to the requirements of part 178 of this subchapter. The appliances must be packed, so that they cannot be accidentally activated and, except for life vests, the hazardous materials must be in inner packagings packed so as to prevent movement. The hazardous materials must be an integral part of the appliance and in quantities that do not exceed those appropriate for the actual appliance when in use.
(b) Life saving appliances may contain:
(1) Division 2.2 compressed gases, including oxygen. However, oxygen generators are not permitted;
(2) Signal devices (Class 1), which may include smoke and illumination signal flares;
(3) Electric storage batteries and lithium batteries (Life saving appliances containing lithium batteries must be transported in accordance with §173.185.);
(4) First aid or repair kits conforming to the applicable material and quantity limitations of §173.161 of this subchapter;
(5) Strike-anywhere matches;
(6) For self-inflating life saving appliances only, cartridges power device of Division 1.4S, for purposes of the self-inflating mechanism provided that the quantity of explosives per appliance does not exceed 3.2 g; or
(7) Limited quantities of other hazardous materials.
(c) Hazardous materials in life saving appliances must be packaged as follows:
(1) Division 2.2 compressed gases must be packaged in cylinders in accordance with the requirements of this subchapter;
(2) Signal devices (Class 1) must be in packagings that prevent them from being inadvertently activated;
(3) Strike-anywhere matches must be cushioned to prevent movement or friction in a metal or composition receptacle with a screw-type closure in a manner that prevents them from being inadvertently activated;
(4) Limited quantities of other hazardous materials must be packaged in accordance with the requirements of this subchapter; and
(5) For other than transportation by aircraft, life saving appliances containing no hazardous materials other than carbon dioxide cylinders with a capacity not exceeding 100 cm^3 are not subject to the provisions of this subchapter provided they are overpacked in rigid outer packagings with a maximum gross mass of 40 kg.

[69 FR 76158, Dec. 20, 2004]

EFFECTIVE DATE NOTE: At 72 FR 44950, Aug. 9, 2007, §173.219 was amended by revising (b)(3), effective Jan. 1, 2008. For the convenience of the user, the revised text is set forth as follows:

§ 173.219 Life-saving appliances.

* * * * *

(b) * * *
(3) Electric storage batteries and lithium batteries (Life saving appliances containing lithium batteries must be transported in accordance with §173.185, and Special Provisions 188, 189, A101, A103 and A104 as applicable.);

* * * * *

§ 173.220 Internal combustion engines, self-propelled vehicles, mechanical equipment containing internal combustion engines, and battery powered vehicles or equipment.

(a) *Applicability.* An internal combustion engine, self-propelled vehicle, mechanized equipment containing an

internal combustion engine, or a battery powered vehicle or equipment is subject to the requirements of this subchapter when transported as cargo on a transport vehicle, vessel, or aircraft if—

(1) The engine or fuel tank contains a liquid or gaseous fuel. An engine may be considered as not containing fuel when the fuel tank, engine components, and fuel lines have been completely drained, sufficiently cleaned of residue, and purged of vapors to remove any potential hazard and the engine when held in any orientation will not release any liquid fuel;

(2) It is equipped with a wet electric storage battery other than a non-spillable battery, or with a sodium or lithium battery; or

(3) Except as provided in paragraph (e)(1) of this section, it contains other hazardous materials subject to the requirements of this subchapter.

(b) *Requirements.* Unless otherwise excepted in paragraph (b)(4) of this section, vehicles, engines and equipment are subject to the following requirements:

(1) *Flammable liquid fuel.* A fuel tank containing a flammable liquid fuel must be drained and securely closed, except that up to 500 mL (17 ounces) of residual fuel may remain in the tank, engine components, or fuel lines provided they are securely closed to prevent leakage of fuel during transportation. Self-propelled vehicles containing diesel fuel are excepted from the requirement to drain the fuel tanks, provided that sufficient ullage space has been left inside the tank to allow fuel expansion without leakage, and the tank caps are securely closed.

(2) *Flammable liquefied or compressed gas fuel.* (i) For transportation by motor vehicle, rail car or vessel, fuel tanks and fuel systems containing flammable liquefied or compressed gas fuel must be securely closed. For transportation by vessel, the requirements of §§176.78(k) and 176.905 of this subchapter apply.

(ii) For transportation by aircraft:

(A) Flammable gas-powered vehicles, machines, equipment or cylinders containing the flammable gas must be completely emptied of flammable gas. Lines from vessels to gas regulators, and gas regulators themselves, must also be drained of all traces of flammable gas. To ensure that these conditions are met, gas shut-off valves must be left open and connections of lines to gas regulators must be left disconnected upon delivery of the vehicle to the operator. Shut-off valves must be closed and lines reconnected at gas regulators before loading the vehicle aboard the aircraft; or alternatively

(B) Flammable gas powered vehicles, machines or equipment, which have cylinders (fuel tanks) that are equipped with electrically operated valves, may be transported under the following conditions:

(*1*) The valves must be in the closed position and in the case of electrically operated valves, power to those valves must be disconnected;

(*2*) After closing the valves, the vehicle, equipment or machinery must be operated until it stops from lack of fuel before being loaded aboard the aircraft;

(*3*) In no part of the closed system shall the pressure exceed 5% of the maximum allowable working pressure of the system or 290 psig (2000 kPa), whichever is less; and

(*4*) There must not be any residual liquefied gas in the system, including the fuel tank.

(3) *Truck bodies or trailers on flat cars—flammable liquid or gas powered.* Truck bodies or trailers with automatic heating or refrigerating equipment of the flammable liquid type may be shipped with fuel tanks filled and equipment operating or inoperative, when used for the transportation of other freight and loaded on flat cars as part of a joint rail and highway movement, provided the equipment and fuel supply conform to the requirements of §177.834(l) of this subchapter.

(4) *Modal exceptions.* Quantities of flammable liquid fuel greater than 500 mL (17 ounces) may remain in self-propelled vehicles and mechanical equipment only under the following conditions:

(i) For transportation by motor vehicle or rail car, the fuel tanks must be securely closed.

(ii) For transportation by vessel, the shipment must conform to §176.905 of this subchapter.

(iii) For transportation by aircraft, when carried in aircraft designed or modified for vehicle ferry operations and when all of the following conditions are met:

(A) Authorization for this type operation has been given by the appropriate authority in the government of the country in which the aircraft is registered;

(B) Each vehicle is secured in an upright position;

(C) Each fuel tank is filled in a manner and only to a degree that will preclude spillage of fuel during loading, unloading, and transportation; and

(D) Each area or compartment in which a self-propelled vehicle is being transported is suitably ventilated to prevent the accumulation of fuel vapors.

(c) *Battery powered or installed.* Batteries must be securely installed, and wet batteries fastened in an upright position. Batteries must be protected against short circuits (e.g., by the use of non-conductive caps that entirely cover the terminals) and leakage or removed and packaged separately under §173.159. Battery powered vehicles, machinery or equipment including battery powered wheelchairs and mobility aids are excepted from the requirements of this subchapter when transported by rail, highway or vessel.

(d) *Lithium batteries.* Except as provided in §172.102, Special Provision A102, of this subchapter, vehicles and machinery powered by primary lithium batteries that are transported with these batteries installed are forbidden aboard passenger-carrying aircraft. Lithium batteries contained in vehicles or engines must be securely fastened in the battery holder of the vehicle or engine, and be protected in such a manner as to prevent damage and short circuits (e.g., by the use of non-conductive caps that entirely cover the terminals). Lithium batteries must be of a type that have successfully passed each test in the UN Manual of Tests and Criteria as specified in §173.185, unless approved by the Associate Administrator. Equipment, other than vehicles or engines, containing lithium batteries must be transported in accordance with §173.185.

(e) *Other hazardous materials.* (1) Items of equipment containing hazardous materials, fire extinguishers, compressed gas accumulators, safety devices and other hazardous materials which are integral components of the motor vehicle, engine or mechanical equipment and are necessary for the operation of the vehicle, engine or equipment, or for the safety of its operator or passengers must be securely installed in the motor vehicle, engine or mechanical equipment. Such items are not otherwise subject to the requirements of this subchapter.

(2) Other hazardous materials must be packaged and transported in accordance with the requirements of this subchapter.

(f) *Additional requirements for internal combustion engines and vehicles with certain electronic equipment when transported by aircraft or vessel.* When an internal combustion engine that is not installed in a vehicle or equipment is offered for transportation by aircraft or vessel, all fuel, coolant or hydraulic systems remaining in the engine must be drained as far as practicable, and all disconnected fluid pipes that previously contained fluid must be sealed with leak-proof caps that are positively retained. When offered for transportation by aircraft, vehicles equipped with theft-protection devices, installed radio communications equipment or navigational systems must have such devices, equipment or systems disabled.

(g) *Exceptions.* Except as provided in paragraph (e)(2) of this section, shipments made under the provisions of this section—

(1) Are not subject to any other requirements of this subchapter, for transportation by motor vehicle or rail car; and

(2) Are not subject to the requirements of subparts D, E and F (marking, labeling and placarding, respectively) of part 172 of this subchapter or §172.604 of this subchapter (emergency response telephone number) for transportation by vessel or aircraft. For transportation by aircraft, all other applicable requirements of this subchapter, including shipping papers, emergency response information, notification of pilot-in-command, general packaging

requirements, and the requirements specified in §173.27 must be met. For transportation by vessel, additional exceptions are specified in §176.905 of this subchapter.

[64 FR 10778, Mar. 5, 1999, as amended at 66 45381, Aug. 28, 2001; 68 FR 45035, July 31, 2003; 69 FR 75216, Dec. 15, 2004; 69 FR 76158, Dec. 20, 2004; 70 FR 34398, June 14, 2005; 71 FR 14603, Mar. 22, 2006; 71 FR 78632, Dec. 29, 2006]

EFFECTIVE DATE NOTE: At 72 FR 44950, Aug. 9, 2007, in §173.220(d) the phrase ''Special Provision A102'' was amended to read ''Special Provision A101'', effective Jan. 1, 2008.

§173.221 Polymeric beads, expandable and Plastic molding compound.

(a) Non-bulk shipments of Polymeric beads (or granules), expandable, *evolving flammable vapor* and Plastic molding compound *in dough, sheet or extruded rope form, evolving flammable vapor* must be packed in: wooden (4C1 or 4C2), plywood (4D), fiberboard (4G), reconstituted wood (4F) boxes, plywood drums (1D) or fiber drums (1G) with sealed inner plastic liners; in vapor tight metal or plastic drums (1A1, 1A2, 1B1, 1B2, 1H1 or 1H2); or packed in non-specification packagings when transported in dedicated vehicles or freight containers. The packagings need not conform to the requirements for package testing in part 178 of this subchapter, but must be capable of containing any evolving gases from the contents during normal conditions of transportation.

(b) Bulk shipments of Polymeric beads (or granules), expandable, *evolving flammable vapor* or Plastic molding compounds *in dough, sheet or extruded rope, evolving flammable vapor* may be packed in non-specification bulk packagings. Except for transportation by highway and rail, bulk packagings must be capable of containing any gases evolving from the contents during normal conditions of transportation.

[64 FR 10779, Mar. 5, 1999]

§173.222 Dangerous goods in machinery or apparatus.

Hazardous materials in machinery or apparatus are excepted from the specification packaging requirements of this subchapter when packaged according to this section. Hazardous materials in machinery or apparatus must be packaged in strong outer packagings, unless the receptacles containing the hazardous materials are afforded adequate protection by the construction of the machinery or apparatus. Each package must conform to the packaging requirements of subpart B of this part, except for the requirements in §§173.24(a)(1) and 173.27(e), and the following requirements:

(a) If the machinery or apparatus contains more than one hazardous material, the materials must not be capable of reacting dangerously together.

(b) The nature of the containment must be as follows—

(1) Damage to the receptacles containing the hazardous materials during transport is unlikely. However, in the event of damage to the receptacles containing the hazardous materials, no leakage of the hazardous materials from the machinery or apparatus is possible. A leakproof liner may be used to satisfy this requirement.

(2) Receptacles containing hazardous materials must be secured and cushioned so as to prevent their breakage or leakage and so as to control their movement within the machinery or apparatus during normal conditions of transportation. Cushioning material must not react dangerously with the content of the receptacles. Any leakage of the contents must not substantially impair the protective properties of the cushioning material.

(3) Receptacles for gases, their contents and filling densities must conform to the applicable requirements of this subchapter, unless otherwise approved by the Associate Administrator.

(c) The total net quantity of hazardous materials contained in one item of machinery or apparatus must not exceed the following:

(1) 1 kg (2.2 pounds) in the case of solids;

(2) 0.5 L (0.1 gallons) in the case of liquids;

(3) 0.5 kg (1.1 pounds) in the case of Division 2.2 gases; and

(4) A total quantity of not more than the aggregate of that permitted in paragraphs (c)(1) through (c)(3) of this section, for each category of material in the package, when a package contains hazardous materials in two or